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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/720,645	07/10/2001	Claus J. H. Jacobsen	001703	3994

23850 7590 06/26/2003

ARMSTRONG, WESTERMAN & HATTORI, LLP  
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WASHINGTON, DC 20006

EXAMINER

WRIGHT, WILLIAM G

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 06/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/720,645

Applicant(s)

JACOBSEN ET AL.

Examiner

William G. Wright SR.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 5 and 6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5 and 6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5 and 6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Pinto in view of the English Abstract of Russian 321045. Pinto discloses an ammonia synthesis process, and teaches at column 5, lines 33-59 that the ammonia synthesis catalyst can be in the form of particles in the sieve range of 1 to 4.7 mm with radial flow of the synthesis gas through a cylindrical reactor. The difference between the process disclosed by Pinto, and that recited in applicant's claims, is that Pinto does not disclose that at least 10% of the catalyst particles should have a size range of 0.3 to 0.8 mm. The English Abstract of Russian 321045 discloses an ammonia synthesis process, and teaches that yields are increased and productivity and energy consumption are improved if the catalyst bed comprises small particles of catalyst of size 0.5 to 1.0 mm in the spaces between stationary coarse catalyst particles. It would be prima facie obvious from the English Abstract of Russian 321045 to

modify the process of Pinto by employing at least 10% ammonia synthesis catalyst particles having a size range of 0.5 to 0.8 mm in size, since the Abstract of Russian 321045 teaches that yields are increased when employing such small particles between coarse particles due to the fact that the small particles move in spaces between the coarse particles. Although the process of Russian 321045 is directed to a fluidized bed, it would be expected that the presence of the small particles in combination with coarse particles would also increase the yields, productivity and energy consumption in a fixed bed, since the small particles could move in the spaces between the coarse particles due to the radial flow of the synthesis gas.

Hinrichs is made of record for disclosing a process for producing ammonia using aligned catalyst particles.

Shannahan is made of record for disclosing an ammonia synthesis process, and teaching at column 4, lines 4-13 that the catalyst should have a particle size of 0.1 to 0.2 mm.

Jennings is made of record for disclosing an ammonia synthesis process, and teaching in the paragraph bridging columns 5 and 6 that the catalyst size should range from 0.6 to 1.0 mm.

Passariello '254 is made of record for disclosing an ammonia synthesis process, and teaching at column 1, lines 61-66 that the catalyst should comprise irregular granules of 1 to 3 mm.

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Passariello '749 is made of record for disclosing an ammonia synthesis process, and teaching at column 2, lines 53-57 that a spherical catalyst having a diameter in the range of 1.5 to 2.5 mm is employed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William G. Wright, Sr. whose telephone number is (703) 305-7792. The examiner can normally be reached on Monday through Thursday from 6:30 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on (703) 308-3837. The fax phone number for the organization where this application or proceeding is assigned are (703) 872-9310 for the regular communications and (703) 872-9311 for after final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-1495.

WGW

W. G. Wright, Sr.:cdc

June 24, 2003

*Wayne A. Langel*  
WAYNE A. LANGEL  
PRIMARY EXAMINER